

Program Meeting
The Nature of Color:
It's More Than Meets the Eye
Laura Busby
virtually see page 9
October 1, 2023 1:30 - 3:30 pm

September
October
2023



The Sandpiper

Annual Picnic is a great success

Hosted by Cecelia Boulais (and sister Nancy) at her organic farm on the edge of the Chehalis River, members and guests of the Grays Harbor Audubon chapter, enjoyed an incredibly perfect day on an incredibly rich ecosystem. Fresh grilled plant-based burgers and dogs were featured, along with spectacular home made desserts. It was a fun day with good people.



The President's Perch



By Janet Strong

FREE TREES: For the second season in a row, the Carbon Capture Foundation (CCF) is arranging for free native trees to be offered to members and other citizens. Their goal is to combat global warming through the planting of trees in all appropriate areas. The trees are obtained mostly from the Webster Tree Nursery managed by the Department of Natural Resources.

The species available include Oregon white Oak, the westside variety of Ponderosa Pine (both of which are super drought tolerant), Douglas fir, Red Alder, Black Cottonwood and Western Red cedar. You may order just a few for your back yard, or a couple hundred for a farm or field. They need to be planted where they can grow permanently and not be harvested as timber. The pick-up date will be sometime in middle to late December as this is the start of the prime planting season. If you are interested, please email me with your order and/or questions as soon as possible so DNR has plenty of time to assemble the packets. If DNR is short some species, CCF assures me there are other sources it can tap into for trees. My email address is janet.strong4@gmail.com.

MEMBERSHIP: The board of GHAS is eternally grateful to all our members who stuck by our Audubon chapter through the Covid epidemic, who hung in there when all we could offer were virtual experiences. We are gradually emerging from our cocoon, planning for in-person members' programs and field trips. Sunday, we had a fun, interactive table at the Lake Sylvia Festival that attracted lots of folks interested in birds and birding. Most of them signed up to receive the Sandpiper (electronically).

We would like to invite all of our readers to become members of Grays Harbor Audubon, if not already on our membership roster. We have five membership programs with a speaker (and refreshments) per year and a summer picnic in August. Annual dues are very modest. We protect over 3,000 acres of habitat for wildlife and fish in perpetuity, featuring wetlands, forests of varying ages, streams and river riparian areas. New and current members alike can help us keep an eye on their welfare and/or improve their habitat. So please join us for meetings, picnics, land stewardship and/or other important roles



photo by Charles Melton

Member Meeting

The nature of color: it's more than meets the eye!

What causes the brilliant hue on a hummingbird throat or the soft blue of a bluebird? Light forms nature's color palette that enriches our daily lives. Colors are profoundly important, performing complex functions in nature. For birds, colors are necessary for all aspects of survival. Research continues to unveil interesting and intricate bird-color connections.

Join Laura Busby on a tour through a rainbow of colors as we explore some of the surprising and intriguing roles they play in the lives of birds.

Laura works for the Department of Ecology as a grant manager and planner supporting counties and health districts with management of solid waste (garbage, recycling, hazardous waste). Previously, she worked with Washington State Parks as an Interpretive Specialist for parks in Kittitas and Yakima counties. Laura is a nature nut, spending her free time hiking, birding, wildlife tracking, traveling and enjoying this beautiful planet we call home. [Meeting link](#)

Membership dues for 2023 - It is not too late!

Your support of Grays Harbor Audubon Society (GHAS) helps to assure that our over 3000 acres of prime wetlands and wildlife habitat are protected for future generations. In addition, your tax-deductible donation helps the chapter provide our informational website, member meetings, and support to like-minded organizations. Your membership renews January 1, 2023. Please send your dues to GHAS PO Box 470 Montesano, Washington 98563. Please join or renew at the highest level you can afford. See page 8 for a membership form.



Photo by Russell Link,
WA Dept. Fish & Wildlife

The mechanics of how birds flock

Wildlife researchers have long tried to understand why birds fly in flocks and how different types of flocks work. A new study from the University of North Carolina at Chapel Hill explores the mechanics and benefits of the underlying flock structure used by four types of shorebirds. Understanding more about how these birds flock moves researchers a step closer to understanding why they flock.

The study, led by Aaron Corcoran, a postdoctoral researcher studying bat and bird flight and ecology, and biology Professor Tyson Hedrick of UNC-Chapel Hill, appears in the June 4 issue of *eLife*. The National Science Foundation funded the work.

In the study, the researchers focused on four types of shorebirds that vary in size: dunlin, short-billed dowitcher, American avocet and marbled godwit. Corcoran and Hedrick filmed and analyzed almost 100 hours of video footage to better understand the mechanics of shorebird flocks. They found that the birds fly in a newly defined shape the team named a compound V-formation, which they believe provides an aerodynamic advantage and predator protection.

This compound formation is a blend of two of the most common flock formations. One is a cluster formation, common with pigeons, where a large number of birds fly in a moving three-dimensional cloud with no formal structure. This structure is useful for avoiding predators. The second is a simple V-formation, commonly used by Canada Geese, where a smaller number of birds will line up in a well-defined two-dimensional V-shape.

A flying bird creates downward-moving air immediately behind it and upward-moving air just beyond its wingspan on the left and right," Hedrick said.

"Taking advantage of this upward-moving air is all about positioning, and birds in the simple-V formation and compound-V formation are positioned correctly for aerodynamic advantage."

To better understand the cluster-V formation and its mechanics, Corcoran and Hedrick recorded 18 cluster-like flocks of 100 to 1,000 birds flying over a bird sanctuary and agricultural fields during a migration stopover. The researchers measured the individual bird positions, flight speeds and even flapping frequency using three-dimensional computer reconstructions of the flocks from the video recordings.

"We thought we would find a trend in flock organization related to how large or small the different birds were," Hedrick said. "Instead we saw that regardless of size, all these birds flew in the same formation -- one that might let them get an aerodynamic benefit while flying in large groups, aiding their long-distance migration."

Birds often fly in flocks ranging from very structured V-formations to loose clusters to improve flight efficiency, navigation or for predator avoidance. However, because it is difficult to measure large flocks of moving birds, few studies have measured how birds position themselves in large flocks or how their position affects their flight speed and flapping frequency.

The four types of birds studied in this project live in similar environments, but vary greatly in size, fly at different speeds, and have been evolutionarily separate for 50 million years. The birds mostly flocked with their own species, except for a few occasions where the godwits and dowitchers flew together in a mixed flock.

The study also showed that each bird -- regardless of size or species, or even the species of its neighbor -- most commonly flew about one wingspan to the side and between a half to one-and-a-half wingspans back from the bird in front of it. This flock structure, which is different from that of other flocking birds like pigeons and starlings, was termed a compound V-formation because birds flying in simple V-shaped formations follow similar rules.

Published in Science Daily, University of New Orleans Researchers, June 4, 2019

Shorebird Festival Opportunity

by Arnie Martin

I am retiring from my work on the Shorebird Festivals of the past 15 years. I need to find a replacement person who could work on the planning and execution of the 2024 Grays Harbor Shorebird and Nature Festival (May 3rd through May 5th 2024). The person needs to be a member of Grays Harbor Audubon Society who has time to spend 10 to 15 hours per month in planning (mostly via Zoom), spend all day during the several days prior to the 2024 Festival, and 12 hours per day during the Festival. Ideally, the person would live in Grays Harbor County, preferably in the Aberdeen/Hoquiam area.

The person must have transportation, some computer skills, and the ability to work with other Grays Harbor Shorebird Festival committee members (including the U.S. Fish and Wildlife personnel and Nisqually NWR volunteers) that keep the Grays Harbor National Wildlife Refuge property at Bowerman Basin operational.

The biggest need is for a person who is passionate about protecting birds and wildlife, who can devote their time during several years' Festivals.

I would be available to act as a guide plus advisor. If you are interested, please call me at 360-580-1961, and we can discuss any questions you may have, prior to having an interview with GHAS and USF&W personnel.



photo by Jeff Goulden

12 Ways the Inflation Reduction Act will benefit birds and people

The historic legislation will reduce carbon pollution, create jobs, and build new protections from climate threats for birds, people, and the places we need.

By National Audubon Society (edited for space)

The name doesn't make it obvious, but the Inflation Reduction Act is the most significant climate legislation ever to become law. It also does a lot of other important things. Here are 12 ways this bill benefits birds, people, and the places we need.

1) Reducing Carbon Pollution Through Clean Energy

Birds tell us that we need to take action on climate change. A 2019 report from the National Audubon Society found that two-thirds of North American bird species will be vulnerable to extinction if global temperatures are allowed to rise at the current rate. The best way to do that is by deploying clean energy across the United States.

By directing about \$370 billion toward speeding the transition to clean energy (two-thirds in the form of tax credits for producing renewable electricity, investing in renewable technologies, and clean energy manufacturing), the Inflation Reduction Act will cut annual U.S. greenhouse gas emissions by about 1 billion metric tons by 2030, which will help drive down carbon emissions by about 42 percent according to a preliminary study by Princeton University.

2) Assessing the Cost of Methane Pollution

Methane is one of the most dangerous greenhouse gases, and is the second-biggest contributor to climate change, after carbon dioxide. Venting, or burning off, excess methane is particularly hazardous for both people and wildlife, and methane leakage is a common problem in fossil fuel production. Methane from the oil and gas supply chain is often co-emitted with harmful air pollutants.

Reducing emissions from greenhouse gases like carbon dioxide and methane will help alleviate some of the worst effects of climate change. The IRA includes funds for methane emissions monitoring and fixes, and applies a fee on oil and gas operations of \$900 in 2024 (up to \$1,500 in 2026 and thereafter) per metric ton of methane emitted.

3) Spurring Innovation in Clean Energy and Transmission Deployment

Improving our nation's transmission infrastructure is critical to delivering renewable energy to consumers and enabling the transition to clean, carbon-free electricity at the pace climate threats demand. The IRA would provide more than \$70 billion in new loan authority within the Department of Energy, which will help expand clean energy and transmission, as well as update infrastructure to meet climate threats and ensure that new projects are designed with conservation of existing environments in mind.

4) Building Drought Resilience in the West

The IRA includes \$4 billion in drought resilience funding for the American West, where rivers like the Colorado River—which provide water for 40 million people and 400 bird species—are in crisis. Specifically, this funding allows agricultural and

Continued on page 5

12 ways IRA benefits continued from page 4
municipal water users to voluntarily reduce water consumption (leaving more water in rivers), advance projects for efficiencies in water conservation, and restore habitats impacted by drought. In the face of a hotter and drier climate, all of these actions will help the Colorado River, the Salton Sea, and other western rivers.

5) *Bringing America's Grassland Prairies Back to Life*

Grasslands are crucial habitat during the lifecycle of beautiful migratory songbirds across America. These habitats are used for nesting, breeding, and foraging. Henslow's Sparrow, Bobolinks, and the Eastern Meadowlark are three species that spend part of their life cycle living in grasslands while feasting on various insects and seeds from the tall stalks surrounding them.

6) *Restoring and Conserving Forests*

Healthy forests are important for birds and people. The Inflation Reduction Act will invest more than \$450 million to help private landowners manage forests and to provide incentives that will help protect more forest ecosystems. Forests naturally store carbon dioxide in their trees, shrubs, and soils, and keep carbon pollution out of the atmosphere.

7) *Growing Healthy Forests for Everyone*

Red-tailed Hawks and other generalist species like Blue Jays benefit tremendously from urban foresting projects. Green spaces in urban areas are also proven to improve both the mental and physical health of those living in surrounding neighborhoods. The IRA invests \$1.5 billion in grants for urban and community forestry. There is an additional \$2 billion for National Forest System lands.

8) *Putting Our Lands to Work for Birds and People*

The \$20 billion from the IRA going toward the grasslands efforts mentioned in #5 will also help more producers implement climate and habitat-friendly practices on their farms and ranches even beyond grasslands. With an additional \$1 billion in Conservation Technical Assistance, these funds will help support programs at the USDA that have proven to work for farmers, ranchers, and birds together by supporting landowners as they make habitat improvements. There is often significantly more interest in these programs than there is funding to meet that interest.

9) *Bolstering Natural Infrastructure to Protect our Coasts*

The Inflation Reduction Act allocates \$2.6 billion dollars to the National Oceanic and Atmospheric Administration (NOAA) for coastal pro-

tection and restoration. Through grants, contracts, and technical assistance, coastal states and Tribes will be able to increase their resilience to climate change by restoring habitats like beach dunes and wetlands. These coastal ecosystems act as natural infrastructure, buffering nearby communities from storms and sea-level rise, while also providing a home for nesting and migrating birds.

10) *Protecting People and Wildlife*

The Inflation Reduction Act will also invest \$1 billion for federal agencies to conduct robust reviews under the National Environmental Protection Act (NEPA) for projects using federal funds or on federal lands. NEPA ensures that the government not only accounts for impacts through sound scientific study but also through public input. These reviews are critical, especially as we know energy and infrastructure projects have historically had a disproportionately negative effect on low-income and rural communities, as well as people of color.

11) *Helping Communities and Conservation Through the Energy Transition*

There are several provisions in the legislation that will help communities and workers transition to a clean energy economy, like incentives for siting new energy projects on brownfields (i.e. former gas plants and coal mines) and providing benefits for employing workers from energy communities in transition.

12) *Making Leasing Public Lands for Energy Development Fairer*

The federal government has failed to update the way we lease public lands to oil and gas companies for decades,

The IRA also increases royalty fees and rental rates for onshore oil and gas development and designates that the pricing is regularly adjusted for inflation. These changes will provide important new funding for state and federal budgets. They could also help limit the common practice of oil and gas companies pursuing and locking up large parcels of land that could be important for wildlife, like the Greater Sage-Grouse, even though they may not intend to drill on it. As energy companies use America's public lands for exploration and production it is only right that we work to make the system and price for extracting our natural resources fair.

(For the complete article see https://www.audubon.org/news/12-ways-inflation-reduction-act-will-benefit-birds-and-people?ms=digital-eng-email-ea-newsletter-engagement_20230823_wing-span_



Artwork by Charlotte Holden, 2023 Bartels Science Illustrator, Cornell Lab of Ornithology.

Light Pollution Threatens Coastal Marine Systems

Offshore effects are still largely unknown

Artificial light at night has a profound effect on land-based life--from birds to fireflies to humans. But a new study suggests we need to widen our view to include light pollution's effect on coastal marine ecosystems, impacting everything from whales to fish, coral to plankton. This new synthesis of marine light pollution science is published in the journal *Aquatic Conservation: Marine and Freshwater Ecosystems* <https://onlinelibrary.wiley.com/doi/10.1002/aqc.4011>

"Sea creatures have evolved over millions of years to adapt to natural light intensity and patterns," explained lead author Colleen Miller who did this work while a Cornell Lab of Ornithology graduate student. "But now they face an ever-increasing flood of light from human development along the coasts and, except for a few case studies, we have a limited understanding about how it affects many species and entire ecosystems."

Moonlight and starlight serve as important cues for marine organisms and their glow can easily be washed out by artificial light. Studies that have been done on marine light pollution found shifts in hormonal cycles, inter-species behavior, and reproduction. One classic example is the sea turtle.

"Artificial light at night is harmful to sea turtles in two ways," said Miller. "Females trying to find a quiet dark spot to lay their eggs avoid light and may end up not coming ashore at all. Hatchlings head toward inland lights instead of moonlight on the water and then die of dehydration or starvation."

The very nature of artificial light itself is also changing with the widespread use of LED lighting. LEDs typically have more short wavelength light than older technologies and can penetrate

deeper into the water.

The good news is that land-based efforts to go Lights Out for migratory birds will also benefit marine systems near coastal cities. Using as much red light as possible is another option because it doesn't penetrate as far into the water. It's even possible to put up barriers that would shield the coastline from artificial light.

"We also need to look at artificial light at night on a broader scale," said Miller. "We need much more data from a larger geographic area and over a broader range of organisms. We should be urgently concerned about how artificial light at night is affecting marine ecosystems."

Reference:

Colleen R. Miller and Aaron N. Rice. *A synthesis of the risks of marine light pollution across organismal and ecological scales. Aquatic Conservation: Marine and Freshwater Ecosystems. September 2023. DOI: <http://doi.org/10.1002/aqc.4011>*



Find Fall Migration hot spots

Fall migration is already underway in Westport and throughout the Twin Harbors! As our North American summer fades into the cooler days of fall, tens of millions of migratory birds are traveling south every day across Canada, the U.S., and Mexico into Central and South America and the Caribbean.

Warblers, thrushes, shorebirds — pretty much all the birds that have been busy breeding all summer are now headed south for the winter. Before you retire your binoculars get outside, track the movements of your favorite fall migrants with the *Bird Migration Explorer* (also available in Spanish). Explore hot spots near you. https://explorer.audubon.org/home?ms=digital-eng-email-ea-x-engagement_20230910_bme-where-favorite-bird&legend=expand&layersPanel=collapse

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GHAS Mission

The mission of the Grays Harbor Audubon Society is to seek a sustainable balance between human activity and the needs of the environment, and to promote enjoyment of birds and the natural world



Other Audubon Contacts

GHAS voice mail	(360) 289-5048
National Audubon	(212) 979-3000
GHAS Website	<i>http://ghas.org</i>

****all area codes 360, unless otherwise noted****

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Please Fill Out and Mail Back

**ANNUAL GRAYS HARBOR AUDUBON
CHAPTER MEMBERSHIP CATEGORIES**

If you would like to join Grays Harbor Audubon Society (GHAS), please fill out the form below, **make your check payable to Grays Harbor Audubon Society** and return it with your check to:

**Grays Harbor Audubon Society
P.O. Box 470
Montesano, WA 98563**

Chapter Memberships include a subscription to *The Sandpiper* newsletter. The Grays Harbor Audubon Society is totally self-supporting. Please note that the Sandpiper Newsletter is sent via email, so please include your email address on this form or send it to Linda Orgel at Ldotorg@olearycreek.com

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- I am renewing my membership
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Please do NOT publish my name in the newsletter in the list of GHAS members

To join National Audubon or renew your National Audubon Membership, call 1-800-274-4201.

News & Editorial

send materials to
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or email to
rd@olearycreek.com

Copy deadline 10th of
month preceding
membership meeting

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Program Meeting ***The Nature of Color:*** ***It's More Than Meets the Eye*** ***Laura Busby***

Join Zoom Meeting

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